

CLAIMS

1. Apparatus for producing a pulse of light, comprising a light source operable to produce a said pulse of light,
5 and a filter for filtering undesired light output frequencies from said pulse, wherein said filter comprises water.
2. Apparatus as claimed in Claim 1, comprising means for
10 defining a flow path for said water, which means is optically transparent at least in a region in which said water acts as said filter, and means for producing a flow of said water through said flow path.
- 15 3. Apparatus as claimed in Claim 2, wherein said light source forms part of the means defining said flow path for water, whereby said water acts both to filter said light pulse and to cool said light source.
- 20 4. Apparatus as claimed in Claim 1, which is for use in a method of cosmetic or therapeutic photo-treatment of the human or animal body.
5. Apparatus as claimed in claim 1, wherein said light
25 pulse has an energy of not less than $250 \text{ J/cm}^2/\text{sec}$.
6. A method of cosmetic or therapeutic photo-treatment of the human or animal body in which water is used as an infra-red absorbing filter.
- 30 7. Apparatus for producing a pulse of light, comprising a light source operable to produce a said pulse of light, and a filter for filtering undesired light output frequencies from said pulse, wherein said filter

comprises a liquid within a conduit and the apparatus further comprises means defining a flow path for said liquid, a part of said flow path being constituted by said conduit, and means for passing said liquid through said flow path.

8. Apparatus as claimed in Claim 7, wherein said flow path forms a closed circuit around which said liquid circulates.

9. Apparatus as claimed in Claim 7, wherein said liquid acts as an infra red filter

10. Photo-treatment apparatus comprising a light source and means for transmitting light output from the light source to a treatment site, said means including a light guide having a distal end for contacting the skin of a patient for said photo-treatment, said light guide distal end being shaped in a convex curve whereby pressing the light guide gently against the skin of the patient reduces the amount of blood in the skin below the light guide.

11. Apparatus as claimed in Claim 10, wherein said light guide is shaped as a parallelepipedic prism with a bull-nosed projection on said distal end.

12. Photo-treatment apparatus comprising a light source and means for transmitting light output from the light source to a treatment site, said means including a light guide having a distal end for contacting the skin of a patient for said photo-treatment, said light guide distal end being shaped in a concave manner whereby to relieve pressure applied to the skin by the light guide

in regions where blood is a target of said light output.

13. Apparatus for producing a pulse of light, comprising: a
5 light source operable to provide an output of light in response to a power input, and a power supply connected to the light source for providing said power input, wherein said power supply is operable to provide a power output pulse or pulse train to drive said light
10 source to produce said light output pulse or pulse train, during which light output pulse or pulse train for at least 80% of the light output period (i.e. the duration of a single pulse or the aggregate of the duration of the pulses within a pulse train excluding
15 intervals between pulses) the light power output is from 75 to 125% of the time-weighted average light power output during the light output period.
14. Apparatus as claimed in Claim 13, wherein for at least
20 90% of the light output period the light power output is from 75 to 125% of the time-weighted average light power output during the light output period.
15. Apparatus as claimed in Claim 13, wherein means is
25 provided for adjusting said time-weighted average light power output.
16. Apparatus as claimed in Claim 13, further comprising a
30 housing for said light source, an aperture defined by said housing and a reflector in said housing positioned to reflect a beam of light through said aperture.
17. Apparatus as claimed in Claim 13, further comprising an optical filter in the path of said light beam, said

optical filter being adapted to pass only selected wavelengths of said light.

18. Apparatus for photo-treatment comprising a light
5 source, means for receiving a filter adapted to pass
only selected wavelengths of light so as to dispose
said filter in a light path from said light source,
sensor means for detecting the presence and nature of a
said filter in said filter receiving means, and
10 interlock means for preventing operation of said light
source to carry out photo-treatment except when a said
filter appropriate to an intended photo-treatment is
present in said receiving means and/or for providing an
alarm signal if a said appropriate filter is not
15 present in said receiving means.
19. Apparatus for photo-treatment comprising a light
source, a filter adapted to pass only selected
wavelengths of light disposed in a light path from said
20 light source, said light source being adapted to
produce a light flux of at least $250 \text{ J/cm}^2/\text{sec}$, wherein
said filter is a non-interference absorption filter.
20. Apparatus as claimed in Claim 19, further comprising
25 means for circulating a cooling liquid in contact with
said light source.
21. Apparatus as claimed in Claim 20, further comprising a
filter adapted to pass only selected wavelengths of
30 light disposed in said light path from said light
source and also in contact with said cooling liquid.
22. Apparatus as claimed in claim 1, wherein the light
source comprises a gas-filled arc lamp.

23. Apparatus as claimed in Claim 22, wherein said gas-filled arc lamp is a xenon or krypton lamp.

5 24. Apparatus as claimed in claim 1, wherein the power supply comprises a capacitor, a charging circuit adapted for charging the capacitor to a preselected voltage, a resistor in series between said capacitor and said light source and a discharge switch operable
10 to change from a non-conductive state to a conductive state to cause said capacitor to discharge said light source and back to said non-conductive state again.

15 25. Apparatus according to Claim 24, wherein the light source is an arc lamp and the power supply comprises a simmer generator adapted for feeding the arc lamp with power at a level which is sufficient to keep the arc in the conductive state.

20 26. Apparatus as claimed in claim 1, wherein there is means for focussing the light output to concentrate the same at a selected depth below the surface of the treatment location.